

UTK DISPLACER LEVEL CONTROLLER

Summary

UTK displacer level controller uses float or buoy as the measurement element which connected to a magnetic tube. When the level rises, the magnetic tube will move up and enter into the external magnetic field. Through magnetic induction or magnetic coupling, the magnet controlling switch or offset magnet steel is pulled and makes switch contact on or off. When the level drops, the magnetic tube will move down and separate from the external magnetic field. Then the magnetic controlling switch returns to its original state or, the offset magnet under the action of deadweight returns to a new balance position and make switch contact on or off to realize the level that can be controlled and given an alarm.



Technical Parameters

Nominal Pressure: $\leq 16.0\text{MPa}$

Accuracy: Level control: $\pm 4\text{mm}$

Boundary control: $\pm 6\text{mm}$

Flange standard: HG/T20592-2009, HG/T20615-2009 or on request

Ambient temperature: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Medium temperature: $-40^{\circ}\text{C} \leq T \leq +150^{\circ}\text{C}$ (High temperature type: $T \leq 300^{\circ}\text{C}$)

Medium density: Level control: $\rho \geq 0.5\text{g/cm}^3$

Boundary control: $\rho_1 - \rho_2 \geq 0.25\text{g/cm}^3$

Medium viscosity: $\leq 1\text{St}$ ($10^{-4}\text{m}^2/\text{S}$)

Wetted material: 20、304、316L or on request

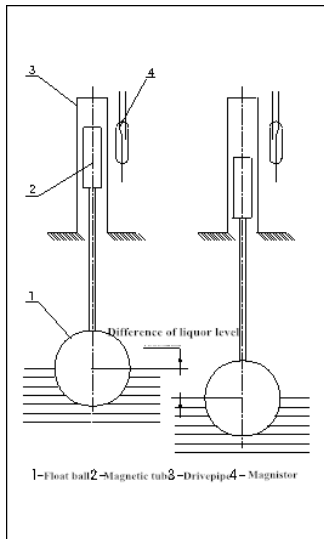
Power inlet: $G_{1/2}''$ (Internal thread) or on request

Explosion-proof: Exd II CT1 ~ T5/T6 Gb; Exia II CT1 ~ T5/T6 Ga

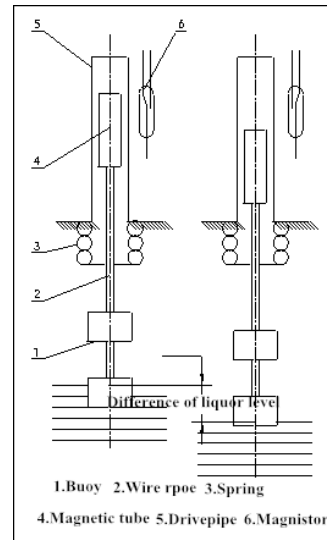
Functional safety level: SIL II

IP Rating: IP66

Related equipment: Safety barrier (Please see the safety recommendation forensics form)



1



2

Picture 1: UTK displacer level controller floating ball type schematic diagram

Picture 2: UTK displacer level controller buoy type schematic diagram

Contact Capacity

Switch Mode	Max Voltage (V)	Max current (A)	Contact Mode	Contact Resistance ($\neq \Omega$)	Switching Speed (\neq ms)	Lifetime (\neq Ten thousand times)
Reed Switch	250	1	SPDT	0.03	3	50
Inches Switch	250	5	SPDT	0.03	3	50

Notice: Intrinsic safety type is only suitable for 24V DC.

Control Range

Level Control

Controller Mode	Measurement Element	Control Point	Max Pressure (MPa)	Nominal Diameter	Alarm Setting Point B(mm)	Range H(mm)	Remark
UTK100	Float ball type	Upper or lower limits	6.3	DN20- DN80	On request		Controlling point can't be adjusted
UTK300	Displacer type	Upper or lower limits	4.0	DN80, DN100	On request	On request	Controlling point can be adjusted
		Upper and lower limits					The upper and lower limits can be also adjusted
UTK400	Displacer type	Upper or lower limits	16.0	DN20- DN40	On request		Controlling point can not be adjusted

Interface Control

Measurement Element	Controlling Point	Max Pressure (MPa)	Min density	Minimum density difference	Alarm setting value B(mm)
			(g/cm ³)		
Floating ball type	Upper or lower limits	4.0	0.5	0.25	On request

Model Selection Table

Model	Code	Contents
UTK-		Displacer level controller

UTK-	100							Flange sealing type
	A							Standard type
	B							Side and bottom type
	C							Side and side I type
	D							Side and side II type
	1							Reed Switch
	3							Inches Switch
	X							Upper or Lower limits
	*							Medium Density (g/cm ³)
	-							
	*							Alarm setting point(Distance from top flange mm)
	i							Intrinsic safety type
	d							Explosion proof type
	-						611	Compliance with PED certification
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Example

UTK-100D3X0.8-178i is UTK displacer level controller, flange sealing, side and side II type, Inches Switch, upper or lower limits alarming, medium density is 0.8 g/cm³, the alarm setting value is 178mm from the upper interface flange, the explosion proof is intrinsic safety type.

Model	Code		Contents
UTK-			Displacer level controller
	300		Top mount type
	400		High pressure type(side and side installation)
		1	Reed Switch

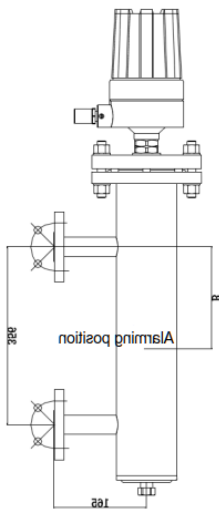
	3		Inches Switch						
	X		Upper or lower limits						
	Y		Upper and lower limits (only for UTK300 type)						
	*		Medium density (g/cm ³)						
		-							
		*	Alarming setting value(Distance from upper interface flange mm)						
			i	Intrinsic safety type					
			d	Explosion-proof type					
			-	Compliance with PED certification					
		611							
UTK-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>

Example

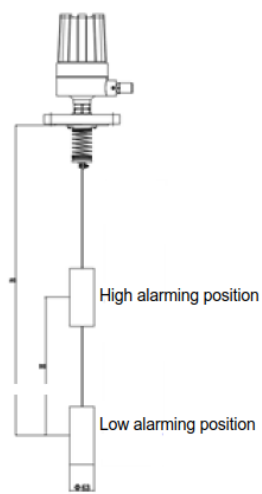
UTK-400D3X0.8-178i is UTK displacer level controller, high pressure type, Inches Switch, upper or lower limits alarming, medium density is 0.8 g/cm³, the alarm setting point is 178mm from the upper interface flange, the explosion proof is intrinsic safety type.

Outline Drawing and Installation

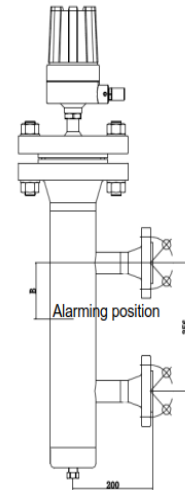
1. Structure



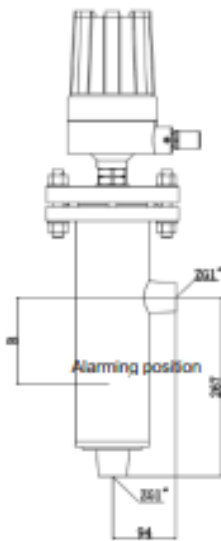
UTK-100A



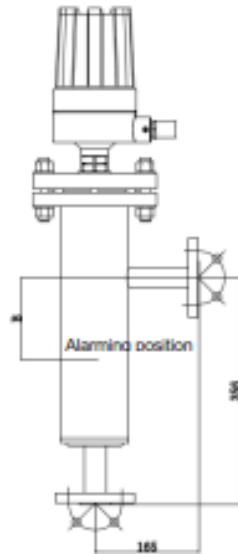
UTK-100B



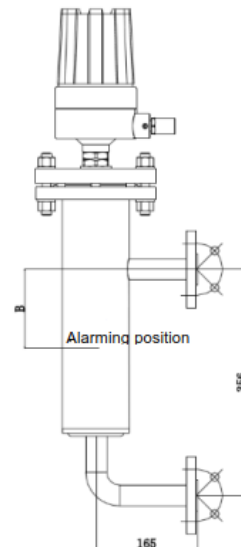
UTK-100C



UTK-100D



UTK-100E



UTK-100F

2. Safety Barrier Recommendation Sheet

Dandong Top Electronics Instrument(Group) Co., Ltd	TP5041 – EX TP5045-EX
Shanghai Institute of automation and instrument	CS8041-EX CS8045-EX

Ordering Information

- Model and Specifications
- Installation mode
- Operating g Medium
- Operating Pressure
- Operating Temperature
- Flange Standard
- Wetted Materials
- Medium Density
- Alarming Setting Point
- Other Special Requirements